21.Collaboration in the second stage between Artificial Research by Application and Artificial Research by Deduction

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In the first stage, database as application, the collaboration between by Application and by Deduction is mainly focused on how they can share elements of their databases, in the sense that any factor as an option can be understood as a category and vice versa, giving the opportunity to exchange factors as options to form databases of categories in by Application. And vice versa, databases of categories could be included as factors as options in by Deduction. At the end of this process, given a global database, there is a possibility to form a unified database of categories taken from the global matrix, all those factors which work as options. Otherwise, another method to construct a unified database of categories is, in only one database of categories, the addition of all the categories from all databases of categories from all the existing Specific Artificial Intelligences for Artificial Research by Application.

In the second stage, replication, the collaboration from by Deduction to by Application is, given the possibility to transform in factors as options all those rational hypothesis which admit this possibility, including them as options within the, specific or global, matrix, then the transformation of these factors as options as categories as well within the corresponding specific database of categories, or the Unified Application if it is ready.

The collaboration from by Application to by Deduction is, given a robotic device in which has been installed an Application or the Unified Application, permanently working in the same location within the spatial limits of a, specific or global, matrix, the possibility to include the flow of measurements that the robotic device could take for every category taken now as a factor as an option within the Specific Artificial Intelligence by Deduction or the Global Artificial Intelligence itself.

In the same way that a robotic device could have installed an Application or the Unified Application, adding new categories at any time that the robotic device finds out any new one not included yet in the Application or the Unified Application, if the robotic device is located permanently in the same position, not only can provide information to the Application or the Unified Application, having a permanent position the robotic device could have installed instruments to measure factors from the specific matrix or the global

matrix, so at any time that a robotic device finds out a new category, not only the new category could be included in the Application or Unified Application, or added as a factor as an option in a specific or global matrix, the robotic device could provide as well a flow of data from this new factor as an option added to the specific or global matrix measuring this new factor permanently as an option for the specific or global matrix.

The third stage, auto-replication, is going to be mainly focused on how any new category found by Application could be integrated into by Deduction, as well as any new single virtual model by Deduction whose rational hypothesis is susceptible to becoming a factor as an option to work as a category by Application, is a single virtual model to integrate within those virtual models in the Application.

In this post, I will develop the collaboration in the second stage using different examples for that purpose to clarify how this collaboration works.

The first model of collaboration is the possibility that given a rational hypothesis found by any Specific Artificial Intelligence for Artificial Research by Deduction, or Artificial Research by Deduction in the Global Artificial Intelligence, this rational hypothesis could be transformed into a factor as an option capable of being integrated in a specific matrix, or the global matrix, and/or the corresponding database of categories in a Specific Artificial Intelligence for Artificial Research by Application, or the unified database of categories in the Unified Application.

The way in which by Deduction tracks any matrix, specific or global, is by looking for any possible mathematical relation in any possible combination of factors, or taking an individual factor to track the possibility of any individual pattern.

The possible mathematical relations that by Deduction, Artificial Intelligence looks for are possible stochastic relations (cause and effect, positive or negative directly proportional relations, inversely proportional relations), patterns, cryptographic relations, relations based on the Second Method of Impossible Probability such as equal opportunities or bias, positive or negative.

At any time that any possible relation in any combination of factors is found, the relation is considered an empirical hypothesis contrasting the relation using samples taken directly from the flow of data, of those factors involved, in the matrix. If the empirical hypothesis is right, then the empirical hypothesis is considered a rational hypothesis, creating a single virtual model to include in the comprehensive virtual model.

Along with this process, if the single virtual model produces any negative consequence in the comprehensive virtual model, then it is possible to measure the impact through the Impact of the Defect, and considering what effects are more negative on the comprehensive model, the possibility to make decisions to reduce or eliminate this negative consequences. These decisions for the protection of the comprehensive model are going to be called protective descriptive research decisions.

In addition to this set of decisions, another set, evaluating, in general, the productivity, efficiency, and efficacy of the comprehensive virtual model, through Hierarchical Organisation (finally in *Introducción a la Probabilidad Imposible, estadística de la probabilidad o probabilidad estadística, t*he Hierarchical Organisation appeared under the name of Effective Distribution), is the possibility to make decisions in order to improve the comprehensive virtual model.

But in all this process, what is going to draw the virtual relations and possible decisions in the third stage of replication, are going to be the possible rational hypotheses found previously in the second stage of replication.

Rational hypotheses, in addition to the rest of the functions developed in Artificial Research by Deduction, in a Specific or the Global Artificial Intelligence, able to work as factors as options.

An example of how a pattern could work as a factor as an option is, for instance, the way in which some patterns are considered as factors in which, in addition to any other measurement, it is possible to measure their frequency. One pattern, for instance, the lunar cycle, and another one, for instance, the solar cycle. In transport, for instance, the pattern of what we consider a rush hour or the pattern of traffic jams in a city. Another one is the cellular pattern, starting and ending with cellular mitosis, or as a pattern, all the biological cycles of any living being from its birth to its death, the planetary cycles, one of the most important for us is the planetary rotation movement and how we measure

the time, the geological patterns, the climatology patterns, the ionosphere patterns, or the solar storm patterns.

The way in which it is possible to measure the frequency of any pattern is rather similar to the way in which cryptography is measured, how many times any character is repeated to find the code. That is why I suggest the use of cryptographic methods to track any matrix.

Any pattern or any cryptographic combination of factors in any matrix, after its acceptance as a rational hypothesis by Deduction, could be incorporated as a factor as an option in the matrix, specific or global, to measure the [frequency](#) in which it happens, and as a category in a, specific or unified, database of categories, by Application.

Another possibility is found in a rational hypothesis of cause and effect, the possibility to transform this rational relation into a factor as an option, as well as a category. There are many situations in which, given a cause and effect, we study the frequency in which this relation happens.

For instance, given a rational hypothesis about which is the antecedent of any earthquake and understanding that this antecedent can cause an earthquake, or is a symptom of an upcoming earthquake, not only to track the specific matrix in tectonics, or to track within the global matrix those factors corresponding to tectonics in order to find when this antecedent is going to happen in order to prevent negative consequence making the corresponding decisions, but the possibility to study the frequency in which this antecedent happens, and the frequency in which after the antecedent is there an earthquake.

In the possible mathematical relation between antecedent and earthquake, what is possible to transform in factors as options, to study the frequency, is then: the antecedent itself as a factor as an option to study the frequency in which this antecedent happens, and the frequency in which after the antecedent is there an earthquake taking the possible relation itself as a factor as option itself.

In climatology, if before any hurricane, it is observed that previously any antecedent has happened, and this possible hypothetic relation between antecedent and hurricane is

rational, then the antecedent itself could be considered as a factor as an option, measuring its frequency, and the frequency in which after the antecedent is observed a hurricane.

A rational relation of cause and effect could be considered as a factor, as an option, to study the frequency in which it happens, as well as the cause itself could be considered as an option as well, studying the frequency in which it happens.

The cause as an option, and the relation between cause and effect, after contrasting if it is rational, could be considered as factors to be integrated into the, specific or global, matrix, by Deduction, to study their frequency, as well as they could be integrated as categories in a specific or unified, database of categories by Application.

In studies within the Second Method focused on equal opportunities or bias, positive or negative, observing that the distribution of any set of phenomena, the distribution is, within the margin of error, of equal opportunities or the distribution is always biased, normally having within the set one subject or option with a more positive bias and others with a more negative bias, then the transformation of these results, if rational, in factors as options or categories, is rather possible.

If finding a new mineral on a planet, and taking samples of rocks, stones, and pebbles, in which this mineral is concentrated, in absolutely all rocks, stones, and pebbles, the chemical composition keeps an identical statistical distribution, so all chemical components of this mineral in every single sample keep the same proportion, then the chemical proportion in this mineral along the sample is a proportion of equal opportunities.

Having accepted as a rational hypothesis that the chemical composition of this mineral keeps an equal opportunity relation, then this rational relation could be incorporated as a factor as an option in a specific or global, matrix, and as a category in a specific or unified, database.

At any time that an Artificial Research, by Deduction or by Application, in a Specific or Global, Artificial Intelligence or Unified Application, finds this new mineral in any place,

even in the farthest corner of the universe, it could study the frequency in which this mineral keeps its chemical composition within a relation of equal opportunities.

In the same way, studies focused on the bias, positive or negative, having observed a biased rational relation between a sample of subjects or objects, for instance, the way in which grows up different plants, in which some of them can develop a more positive bias than others in specific aspects such as height, weight, depth of their roots, level of chlorophyll produced, resistance to bad weather, number of seeds produced, or the development of positive or negative bias in the presence of some chemical component in the distribution of their chemical composition, among others...; studying in what frequency this bias is repeated in different environments.

Once an empirical hypothesis has been accepted as rational, the rational hypothesis is transformed into a single virtual model, to be introduced in the comprehensive virtual model, and in case that supposes any negative consequence, it could bring some decisions. But, at the same time, at any time that a rational hypothesis is accepted, the rational hypothesis could be transformed into a factor as an option to integrate in the specific or global, matrix to study its frequency.

And at the same time that the rational hypothesis is transformed into a factor to study its frequency in the matrix, it could be integrated, as well as category, in the respective Specific Artificial Intelligence for Artificial Research by Application in that synthetic science, discipline, or activity, responsible for the research in the area in which this category was found, or even the possibility to integrate this new category in the unified database of categories if the Unified Application is ready.

Finally, the collaboration from by Application to by Deduction, what is going to be possible between those robotic devices in which the Specific Artificial Intelligence for Artificial Research, by Application or by the Unified Application, has been installed, and works within the spatial limits of an Artificial Research by Deduction in a, Specific or Global, Artificial Intelligence.

Coming back to the example in mineralogy, if a Specific Artificial Intelligence for Artificial Research by Application in mineralogy, or the Unified Application (in which, obviously, it has previously been integrated as well the categories in mineralogy), works in mines within the spatial limits of a Specific Artificial Intelligence for Artificial Research in

Mineralogy by Deduction, or the Artificial Research by Deduction in the Global Artificial Intelligence, in general, how a specific or global level the collaboration from by Application to by Deduction is possible, as long as by Application has been installed in a robotic device working permanently within the spatial limits where by Deduction is working, that robotic device can provide a permanent flow of data to the matrix if that robotic device has a permanent position.

For example, imagine that an application in mineralogy has been installed in robotic devices working permanently in different mines in the United Kingdom, and at the national level, there is a Global Artificial Intelligence, whose national matrix in the Artificial Research by Deduction has included as factors the flow of data in mineralogy provided by this robotic devices.

For each robotic device is possible to set up in the national matrix one factor (defined in terms of latitude, longitude, and depth) so every robotic device in which the application is set up provides a flow of data about the chemical composition of the earth that is being extracted in the mine where is working.

In the end, including in a possible national matrix in the UK (along with all possible factors within its range of action, UK, from economy, industry, security, surveillance, etc..), information about the minerals detected in all the mines in the country, the inclusion of this set of factors for each robotic device, is going to generate, when this information in the matrix is used in the Modelling System, a virtual and actual map about the current mineral extraction that is going on, being possible even the possibility to make predictions upon the current information.

If these robotic devices are already integrated into the national matrix through a mineralogy application, it would be practical to explore expanding their functionality by installing additional applications, such as for temperature or tectonics, using the same spatially defined factors.

And the same time, due to this, robotic devices are working at an underground level. The possibility that having installed an Application in tectonics, every robotic device in every mine could send, in a different set of factors to the national matrix, a flow of data regarding the tectonic activity in every mine.

Given the expected growth of Artificial Intelligence in the coming decades, it is reasonable to anticipate a shift in focus, from designing isolated applications to developing unified systems capable of managing multiple data streams simultaneously.

If in the robotic devices in this example, in order to generate such a flow of information is necessary to install three different applications: for tectonics, mineralogy, and temperature; in the end, what is going to be more useful is the possibility to unify all the possible applications in only one, a Unified Application, that could send direct information to the global matrix directly, sending the Unified Application directly to the global matrix the exact location where the Unified Application is working, setting up directly the Unified Application for every location in the global matrix as many factors as flows of data can send the Unified Application to the global matrix at the same time.

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